RITTENHOUSE FRS
FCD GAGE ID# 6703

STATION DESCRIPTION

LOCATION – Rittenhouse FRS is located north of Ocotillo Road east of the CAP canal in Pinal County, Arizona. Access to the gage can be gained either from Vineyard FRS from the south or traveling east of Vineyard Road on Ocotillo Road. A key is needed to cross the CAP canal. The principal outlet is located on the north end of the structure. The emergency spillway is located at the south end of the structure. The gage station is at latitude N 33° 17' 22", longitude W 111° 29' 49". Located in S02 T2S R8E in the Desert Well 7.5-minute quadrangle.

ESTABLISHMENT – The gage was installed on September 27, 1988.

DRAINAGE AREA – about 47.3 mi^2

GAGE – The gage is a pressure transducer type instrument. The PT is at 0.25 feet gage height or 1,579.25 feet NAVD 1988.

There are four staff gages at this location.

1 – 5 foot staff reads low by 0.23 feet gage height
5 – 10 foot staff reads low by 0.20 feet gage height
10 – 15 foot staff reads low by 0.34 feet gage height
15 – 20 foot staff reads low by 0.36 feet gage height

There are no crest gages at this location

ZERO GAGE HEIGHT – Zero gage height is defined as the concrete pad immediately in front of the inlet opening. Elevation is 1,579.00 feet NAVD 88.

HISTORY – No previous gaging at this location. Zero gage height elevation from changed from 1578.99 feet to 1579.00 feet effective October 1, 2014.

REFERENCE MARKS –

Near gage at principal outlet

A-16 is an SCS brass cap at station marker 190+00. It is listed as 0.65 feet below RM1007 from FCD93-51which was not found. RM1007 was given as 1,603.60 feet NAVD 1988. Therefore, A-16 is at an elevation of 1,602.95 feet NAVD 1988, or 23.95 feet gage height.

RM1 is a brass cap of top of inlet headwall near PT at station 191+40. Elevation is 4.90 feet gage height, or 1,583.90 feet NAVD 1988. Cap is stamped 1,582.95 feet (NGVD?)

RM2 is a brass cap on top of outlet headwall. Elevation is 5.03 feet gage height, or 1,584.03 feet NAVD 1988. Cap is stamped with elevation 1,583.20 feet (NGVD?)

Near Spillway

RM1002 is a 1/2-inch rebar at the south end of a training dike along the southeast margin of the emergency spillway. It is at elevation 1,609.09 feet NAVD 1988 or 30.09 feet gage height, from FCD 93-51 mapping contract.

RITLB3/97 is an FCD brass cap located just left of a road on the left bank of the emergency spillway about 50 feet downstream of the road up from the spillway onto the bank. It has an elevation of 1,600.22 feet NAVD 1988 or 21.22 feet gage height, levels of March 5, 1997.

RITRB3/97 is an FCD brass cap located right of the right bank road of the emergency spillway north of the road crossing of the spillway. Elevation 1,603.77 feet NAVD 1988 or 24.77 feet gage height, levels of March 5, 1997.

CHANNEL AND CONTROL – The principal outlet is a 33-inch diameter concrete culvert with length 136 feet. A single spillway is located on this structure at the south end of the dam. The primary outlet is the control (culvert control) to about 19.4 feet gage height when the spillway crest is reached. Flows in the spillway are controlled by the spillway channel.

PRINCIPAL / EMERGENCY OUTLET –

The principal outlet is a 33-inch pipe that is 136 feet in length. The invert of the inlet is at 0.00 feet gage height.

The emergency spillway is located at the southern end of the structure. The crest of the spillway is at about 19.4 feet gage height. The spillway is about 600 feet wide and has an earthen makeup covered in various desert shrubs. Flow through the spillway is subcritical from an HEC-RAS analysis.

Top of dam elevation is at about 24.4 feet gage height.

RATING – The current discharge rating is Rating #4. The rating is from an analysis by JE Fuller company.

The current capacity rating is Rating #4 developed from a JE Fuller GIS analysis.

DISCHARGE MEASUREMENTS – Low flow measurements could be made at both the principal outlet and emergency spillway.

POINT OF ZERO FLOW – The PZF at the principal outlet is 0.00 feet gage height. The PZF of the emergency spillway is at approximately 19.4 feet gage height.

FLOODS / SIGNIFICANT IMPOUNDMENTS – The peak event occurred on February 12, 2005 with a peak stage of 12.58 feet gage height and 919 acre-feet.

REGULATION – Rittenhouse FRS controls natural flows upstream of the dam area.

DIVERSIONS – There may be small stock tanks created in the drainage area upstream of the dam.

ACCURACY – Good

JUSTIFICATION – Monitor water levels behind Rittenhouse FRS for public safety.

UPDATE – January 5, 2015
D E Gardner